

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated March 10, 2006 (U.S. Patent Office Paper No. 03062006). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1-4 stand for consideration in this application, while claim 4 is being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. All amendments to the application are fully supported therein. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

The First 35 U.S.C. §103(a) rejection

Claims 1-3 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Kirino in view of Takahashi. This rejection is respectfully traversed for the reasons set forth below.

According to the Manual of Patent Examining Procedure (M.P.E.P. §2143),

To establish a prima facie case of obviousness, three basis criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both not found in the prior art, not in the applicant's disclosure.

Claim 1

The Office Action contends that Kirino discloses a manufacturing process of a perpendicular magnetic recording medium and a disordered anti-ferromagnetic layer is formed on a substrate followed by two soft magnetic layers, except that Kirino does not explicitly disclose wherein every step is carried out while applying a magnetic field having a

component parallel to the substrate. The Office Action further contends that Takahashi discloses forming steps carried out while applying a magnetic field having a component parallel to a substrate, and that it would have been obvious to one of ordinary skill in the art to include forming steps carried out while applying a magnetic field having a component parallel to a substrate because Takahashi teaches multiple magnetic domains desired in the art. Applicants respectfully disagree.

The present invention provides a manufacturing process of a perpendicular magnetic recording medium comprising the step of forming a disordered antiferromagnetic layer on a substrate.

Contrary to the Office Action, Kirino does not show that a disordered anti-ferromagnetic layer is formed on a substrate followed by two soft magnetic layers. Rather, Kirino merely shows that a disordered crystalline feature in the initial growth layer was not observed at the interface between the substrate and the thin film 22 (See col. 46, lines 4-7). This means that it is well known that a disordered crystalline feature is often seen in the initial growth layer of a thin film; however, such a disordered crystalline feature was not observed in Kirino's process.

Furthermore, Takahashi shows that a step of applying a magnetic field in parallel to the surface of the substrate, as pointed out by the Examiner. However, Takahashi does not explicitly or implicitly show a disordered anti-ferromagnetic layer formed on a substrate, which Kirino fails to show. Therefore, even if Takahashi is combined with Kirino, the combination would still fail to show or suggest, among other features, steps of forming a disordered antiferromagnetic layer on a substrate, and of forming a polycrystalline soft magnetic layer on the disordered antiferromagnetic layer.

Furthermore, there is no suggestion or motivation to combine Takahashi with Kirino explicitly or implicitly in Takahashi with Kirino, or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made to embody all the features of the invention as recited in claim 1. Accordingly, claim 1 is not obvious in view of all the prior art.

Claims 2-3

As to dependent claims 2-3, the arguments set forth above with respect to independent claim 1 are equally applicable here. The base claim being allowable, claims 2-3 must also be allowable.

Furthermore, regarding claim 2, Takahashi says nothing about that a magnetic field in a radial direction of the substrate is applied. Therefore, claim 2 is clearly not obvious.

The Second 35 U.S.C. §103(a) rejection

Claim 4 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Kirino in view of Takahashi, in further view of Ovshinsky. This rejection is respectfully traversed for the reasons set forth below.

The Office Action contends that Ovshinsky discloses activation of layers including disordered layers. Applicants respectfully disagree.

Ovshinsky merely shows that the structure of a layer's material changes from a disordered amorphous like condition to a more ordered crystalline like condition by activating a catalytic material of a layer of memory materials. However, Ovshinsky says nothing about an interlayer exchange coupling which takes place between two layers.

In contrast, the present invention as now recited in claim 4 provides that an interlayer exchange coupling occurs between said another polycrystalline soft magnetic layer and the disordered antiferromagnetic layer. An interlayer exchange coupling between two layers is a completely different physical phenomenon from the structural change of a layer's material described in Ovshinsky.

Thus, even if Ovshinsky is combined with Kirino and Takahashi, the combination would still fail to show or suggest, among other features, that an interlayer exchange coupling occurs between said another polycrystalline soft magnetic layer and the disordered antiferromagnetic layer.

Furthermore, there is no suggestion or motivation to combine Ovshinsky with Kirino and Takahashi explicitly or implicitly in Ovshinsky, Takahashi or Kirino, or in the knowledge generally available to one of ordinary skill in the art at the time the invention was made to embody all the features of the invention as recited in claim 4. Accordingly, claim 4 is not obvious in view of all the prior art.

Conclusion

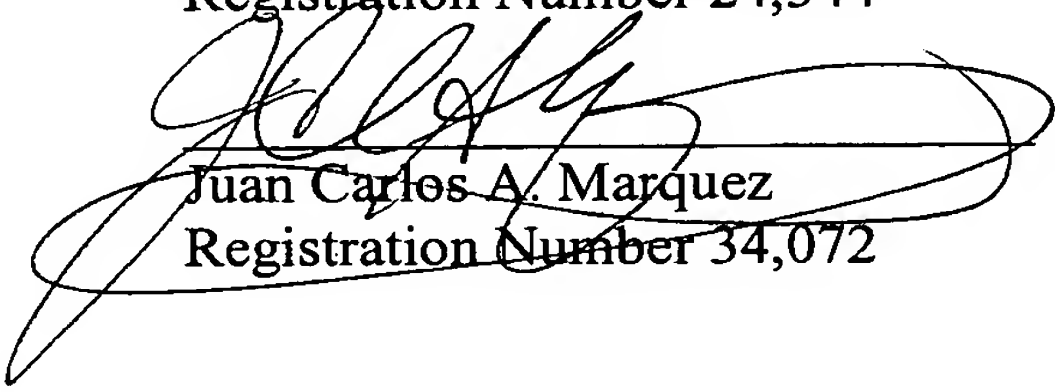
In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor

rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

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